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Michaela Slotwinski, Alois Stutzer

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Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de
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Women Leaving the Playpen: The Emancipating Role of Female Suffrage

Abstract

The role of women in Western societies changed dramatically in the 20th century. We study how political empowerment affected women's emancipation as reflected in their life choices like marital decisions and labor market participation. The staggered introduction of female suffrage in Swiss states allows us to exploit the variation in the age women experienced enfranchisement to estimate the differences in life choices between women who were socialized in a world where women had a formal say in politics and those who were mainly socialized before. Our empirical findings document that political empowerment strongly increased female labor force participation, weakened marital bonds and motivated human capital investment. Moreover, being socialized with female suffrage increased long-term voting participation and perceptions of control. Our evidence suggests that changes in formal political institutions hold the power to change norms.

JEL-Codes: D020, D720, J120, J160, J220, J240, Z130.

Keywords: female suffrage, voting rights, institutions, norms, female labor force participation, marital choices, voting participation, efficacy.

Michaela Slotwinski
University of Basel
Faculty of Business and Economics
Peter Merian-Weg 6
Switzerland – 4002 Basel
michaela.slotwinski@unibas.ch

Alois Stutzer
University of Basel
Faculty of Business and Economics
Peter Merian-Weg 6
Switzerland – 4002 Basel
alois.stutzer@unibas.ch

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In the struggle for female suffrage and female emancipation in Switzerland, the book entitled "Frauen im Laufgitter" (in English "Women in the Playpen") by Iris von Roten (1958) was probably the most prominent publication. It was perceived as scandalous and worked as a catalyst in public discourse.

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1 Introduction

The struggle for political equality between women and men was one of the fundamental social movements in the 20th century in many countries. However, so far, little is known about what this constitutive change unleashed on the individual level, i.e. what the consequences of being politically empowered were for women's life choices. We focus on the introduction of female suffrage as a historic event, which allows us to learn about the effects of legal rights on attitudes and norms, and ultimately economic and household decisions on education, labor force participation, marriage and divorce. Consequences of political empowerment are hard to study in an empirically rigorous way. First, most countries introduced female suffrage in the 1920s or just after the second world war, a period for which individual level data is scarce. Second, with individual introduction dates of female suffrage in one country, it is difficult to separate age, cohort and general time effects from any potential effect of women's empowerment. We therefore concentrate on the experience in a strongly decentralized country, i.e., Switzerland. While Switzerland is certainly one of the oldest and most developed democracies, it took about sixty cantonal and two federal popular votes between 1919 and 1971 to achieve a gradual introduction of female suffrage on the level of states (i.e. cantons), until there was almost a uniform political participation right for women and men in 1971 (Ruckstuhl, 1986).

Building on theories that emphasize conditions during childhood, as well as adolescence and early adulthood, as decisive in the formation of attitudes and norms (see, e.g., Roberts et al., 2006; McAdams and Olson, 2010), we study how socialization in an environment in which women hold formal democratic participation rights changed women's lives in terms of their labor force participation, their educational attainment, as well as their marital status. We hypothesize that political empowerment increases the bargaining power of women, i.e., it changes women's threat point in everyday bargaining as they are - and feel - more in control of their lives. This puts women on a more equal footing with men, allowing them to renegotiate the norms related

to traditional gender roles, making employment more attractive, marriage less necessary, and divorce more affordable.

We exploit the variation in the age at which women experienced enfranchisement caused by the staggered introduction of female suffrage across Swiss cantons. Our identification draws on the idea that repeated cross-sectional data in combination with regional variation in the exposure to a treatment during individuals' childhood and influential years brings us closer to causal estimates, as it allows for the inclusion of age, time, and cohort fixed effects, taking care of many potential confounding factors. Such an approach has, for example, been put forward by Malmendier and Nagel (2011) and Giuliano and Spilimbergo (2013) to investigate the effect of exposure to macroeconomic downturns on individuals' risk and redistribution preferences, and has further been applied by Fuchs-Schündeln and Schündeln (2015) to determine whether exposure to democracy affects democratic preferences. Using register data from the Swiss population census over several decades, we identify the effects of political empowerment on female life choices by comparing how women who got the right to vote at different ages differ in their status years later. Importantly, these women were exposed to the same labor, marriage, and divorce laws at any point in time.

We find that women who have been denied the right to vote until after the age of 17 have an up to 6 percentage point lower probability of being engaged in paid work than women who experienced enfranchisement before the age of 17. Thereby the difference is increasing in the age of enfranchisement. We further document that women enfranchised later have a higher probability of being a housewife by up to 5 percentage points, and that they have a higher probability of working part-time for those working, by up to 5 percentage points. Women who got the right to vote later are further more likely to marry and to stay married. Finally, women who were socialized in an environment without female suffrage are more likely to end up with a low level of education, the effect ranging from about 2 percentage points, for women who experienced the introduction of female suffrage between the age of 17 and 20, to up to about 6 percentage points for those enfranchised later in life. Furthermore, our analysis suggests that the

effects on education choices were largest for women in municipalities that were most conservative regarding the equality of women and men. We proxy these attitudes with the support for the first national referendum on the introduction of female suffrage in Switzerland in 1959, before any canton introduced female suffrage. Interestingly, the life choices of women in more liberal municipalities were also affected by the institutional change. This suggests that in our context the effects of changes in attitudes and norms have been magnified, as participation rights were institutionally confirmed and implemented.

Corroborating our interpretation of the patterns observed in the data, we find no evidence for sorting across cantons along our treatment variation. Moreover, a simulation analysis indicates that general societal changes around the time of the institutional reforms are unlikely to be the driver of our findings. This is consistent with the fact that we do not see similar patterns for foreign national women, who were also born and raised in Switzerland, who, however, are not allowed to vote.[1]

We complement our main analyses on the effect of formal political participation rights on life choices, providing direct evidence that female suffrage affects women's political behavior as well as their reported efficacy and perceptions of control. Based on survey data from the Swiss Electoral Studies (Selects), we observe an up to 11-percentage-point lower voting participation for women socialized in an environment without female suffrage until after they reached age of 17. Consistently, women who experienced enfranchisement late are also less likely to discuss elections and tend to find politics complicated. Based on the Swiss Household Panel (SHP), we find that women who experienced the introduction of female suffrage after they turned 17 are more likely to report that they have little influence on life and that others determine what they do, results that we relate to lower self-efficacy.

[1] The same argument holds for a differential supply of public services depending on the introduction of female suffrage (for related evidence in the Indian context see Ghani et al. 2013). If women in politics support policies that help women to reconcile family obligations and a job, such as policies promoting child care facilities or full-time schools, these services are available for Swiss and non-Swiss women alike. Similarly, if female politicians support the recruitment of women in public service jobs, this effect is expected to hold independently of the age of the women.

Our analysis is motivated by and speaks to different streams of research. First, our analysis links to research on how political rights affect individuals' choices and preferences. This includes the notion of political socialization from a life course perspective, emphasizing that people's political attitudes are formed in young adulthood (see, e.g., Franklin et al., 2004; Plutzer, 2002; Giuliano and Spilimbergo, 2013).[2] While consequences for individual decisions beyond political participation are included conceptually, they are rarely studied explicitly. We offer such a contribution by evaluating the consequences for womens' life choices.

Second, we complement research that studies the long-term determinants and the persistence of gender roles in society (see, e.g., Fernandez and Fogli, 2009), and traces and identifies their historical roots (see, e.g., Alesina et al. 2013 and Teso 2016, and for a review Giuliano 2017). While this research strikingly documents the persistence of gender norms, our setting allows us to test whether constitutional rights are able to trigger a transformation in these norms in the medium term, i.e. over one to two generations. We show that power sharing can unleash substantial changes in individuals' economic and marital outcomes within a generation.

Third, our evidence complements previous research showing that circumstances that lead to higher bargaining power for women in the economic sphere increase measures of empowerment in other life domains, for instance, marriage exit options, social independence, and financial autonomy (see, e.g., Gottlieb and Robinson, 2016; Teso, 2016; Tur-Prats, 2016). Such circumstances have further been found to increase investment in girls' human capital (see, e.g., Ashraf et al., 2016), to reduce violence against women (see, e.g., Alesina et al., 2016), and to lead to generally more egalitarian norms (see, e.g., Tur-Prats, 2016).

Fourth, our analysis is also related to contributions evaluating the effects of female suffrage on public policy. Granting democratic rights to new groups in the population who differ in their policy preference is expected to change policy outcomes.[3] With regard to female suffrage,

[2] There is significant related evidence that the eligibility to vote in young adulthood has persistent effects on political participation (see, e.g., Coppock and Green, 2016; Meredith, 2009), and political attitudes (Mullainathan and Washington, 2009).

[3] A related literature therefore studies the conditions for suffrage extensions (see Koukal 2017 and Koukal and Eichenberger 2017 for the Swiss case, and Doepke et al. 2012 for a review).

empirical studies on Western democracies indicate that government expenditures were directed towards higher spending for public health and social welfare after women got the right to vote (see Miller 2008 for the US and Aidt and Dallal (2008) for six Western European countries). However, there is no clear evidence for a general increase in government size (see Lott and Kenny 1999 for the US and Stutzer and Kienast 2005 for Switzerland). In our analysis, we focus on direct effects of how female empowerment changes individual life choices, abstracting from, and statistically controlling for, changes in public policy that might affect women in general.

The remainder of our paper is organized as follows. Section 2 presents the theoretical context in which we relate formal political participation rights to individual life choices leading to our main hypotheses. In Section 3, we introduce the institutional setting, and in Section 4, we describe the empirical strategy. The census data used in our main analysis is described in Section 5. Section 6 presents the results, and Section 7 discusses main challenges to their identification and interpretation. Section 8 offers concluding remarks.

2 Theoretical context and hypotheses

Gender roles and norms are to a large extent social constructs. They are formed through interaction or socialization, as well as by the imitation of role models (Bussey and Bandura, 1999). Within an economic framework, they affect people's behavior either as restrictions or preferences. In the latter case, particular norms are internalized and become part of an individual's self-concept or identity (for a conceptualization in economics, see Akerlof and Kranton 2000). Importantly, preferences and norms which drive economic agents' behavior are partly shaped and affected by institutions (see, e.g., Bowles 1998). We develop a theoretical argument that this mechanism in social transformation is particularly important in the case of political participation rights.

A fundamental aspect of institutions of collective decision-making is whether they allow for participation. In democracy theory, participation rights have been framed as procedural goods of democracy related to individuals' feeling of being respected, treated with dignity, and having a sense of personal control (Lane, 1988). This reasoning builds on substantial research on mastery, self-determination and self-efficacy in psychology (see, e.g., Gecas, 1989). Institutions that allow the experience of autonomy, competence and relatedness strengthen people's perception of control and causal agency, two important factors in human motivation and action.[4] The acquisition of participation rights and their use are thus seen as a source of self-efficacy and esteem.

Based on this reasoning, we hypothesize that acquiring and exercising formal political participation rights increases women's perceived efficacy and affects their long-term decision making. This effect is reinforced by contact with peers who experience the same, and the exposure to female role models who express higher efficacy, self-esteem, and behave less traditionally. The latter mechanism might be particularly strong in the relationship between mothers and their daughters.[5] The perceived empowerment puts women on a more equal footing with men, allowing them to renegotiate the norms related to traditional gender roles, i.e. norms that prescribe that women should focus on preparing for life in a marriage, taking care of the family and the home, not aspiring to paid work and therefore not uselessly investing in human capital. Specifically, it increases their bargaining power within the household (Manser and Brown, 1980). All this might contribute to women's emancipation, an emancipation that brings them out of the home and into the labor market, allowing them to think about independent living arrangements.

The literature on personality development across the human life course overall agrees that attitudes and personality are to a large extent formed during adolescence and early adulthood.

[4] Self-efficacy of children and their parents has been found to be a key determinant of educational aspirations and long-term behavior (Bandura et al., 2001).

[5] Less traditional gender roles seem to be strongly connected to women's self-efficacy perception and to be of importance for gender development (Bussey and Bandura, 1999). In line with these arguments, e.g., Beaman et al. (2012) find that being exposed to female leadership in their village increases girls career aspirations and educational attainment.

Even before, perceptions of appropriate gender specific behavior are partly formed during socialization in childhood (Witt, 1997). While there is some discussion in developmental psychology regarding the most influential years of age (based on the *impressionable years hypothesis*), it is generally found that personality and attitudes stabilize with increasing age (see, e.g. Roberts et al. 2006, and for a review McAdams and Olson 2010).[6] Based on these findings, we would expect that the impact of introducing female suffrage would diminish with increasing age at experience, i.e. the marginal effects would become smaller after the *impressionable years* as individuals' personality and values are mature and major life choices are settled.

Following this reasoning, we analyze whether the introduction of female suffrage had the predicted consequences by means of the following testable hypotheses. Women who mainly grow up and are socialized in a world where women are politically empowered are more emancipated as reflected by their life choices. In particular, these women are (i) more likely to work, (ii) more likely to stay single or to divorce if they marry, and (iii) more likely to achieve a high level of education. Furthermore, as attitudes and personality stabilize over the life span, we hypothesize that any effects on emancipation are smaller, the later a woman experiences enfranchisement.

3 Institutional setting

While Switzerland is one of the oldest and most well-established democracies, it is also one of the last developed countries where women were granted the right to vote. Most countries introduced women's franchise in the 1920s or after the second world war, around 1945. In Switzerland between 1919 and 1971, it took about 60 cantonal and 2 federal popular votes until there was a nearly uniform political participation right for women and men at the federal level

[6] Specifically, some studies emphasizes the age between 18 and 25 as being particularly influenced by impressions from outside the family, and thus early adulthood (see, e.g. Krosnick and Alwin, 1989; Roberts et al., 2006). Others report that some personality characteristics stabilize even earlier (between the age of about 12 and 15), i.e., during early adolescence, and that there might be differences with regard to the concept investigated (see, e.g., Hooghe and Wilkenfeld, 2008; Russo and Stattin, 2017; Abdelzadeh and Lundberg, 2017; Klimstra et al., 2009).

(as well as in most cantons).[7] In February 1971, a popular initiative favoring female suffrage was accepted in a national ballot by 65.7% of the participating male voters (Ruckstuhl, 1986).

The first movements to fight for political rights for women started in Zurich in the late 1860s and the first cantonal votes on the introduction of female suffrage were held but declined between 1919 and 1921 in the cantons of Ticino, Neuchâtel, Basel-City, Zurich, Glarus, and Geneva. While the process started early, there was strong resistance among the male voting population. It was not until 1959 that the canton of Vaud, as the first canton, successfully introduced female suffrage. Step-by-step several cantons followed, adopting it either on the municipal and/or the cantonal level. Overall, it took about 100 years until women received equal political participation rights on the national level. This staggered enfranchisement of women in Switzerland led to the situation that women living in different cantons could participate in the democratic process at different points in time (see, e.g., Ruckstuhl, 1986; Studer, 2015).

Figure 1 visualizes the variation in the years in which women in each Swiss canton were exposed to their first formal opportunities for political participation. The initial opportunity might have been on the municipal, cantonal or federal level, thereby allowing women to participate in municipal, cantonal, or federal elections and votes. Thus, for cantons that adopted female suffrage after its introduction on the federal level, the year of first exposure is set to 1971. Of these latter cantons, nine introduced female suffrage at the cantonal level in the same year, and four cantons one year later in 1972. In total, there are eleven cantons where women experienced suffrage before 1971, covering more than 50 percent of the Swiss population. Table A1 in Appendix A.I lists the introduction dates of female suffrage at the cantonal as well as the municipal level for all cantons.

Due to the staggered introduction, women of the same birth cohort but living in different cantons experienced the introduction of female suffrage at different ages. For instance, while a woman born in Vaud in 1935 was allowed to vote in 1959, and thus at the age of 24, a woman

[7] Some cantons introduced the franchise for women on the municipal and cantonal level after 1971. Appenzell Innerrhoden was the last one, being forced by a decision of the federal court in 1990.

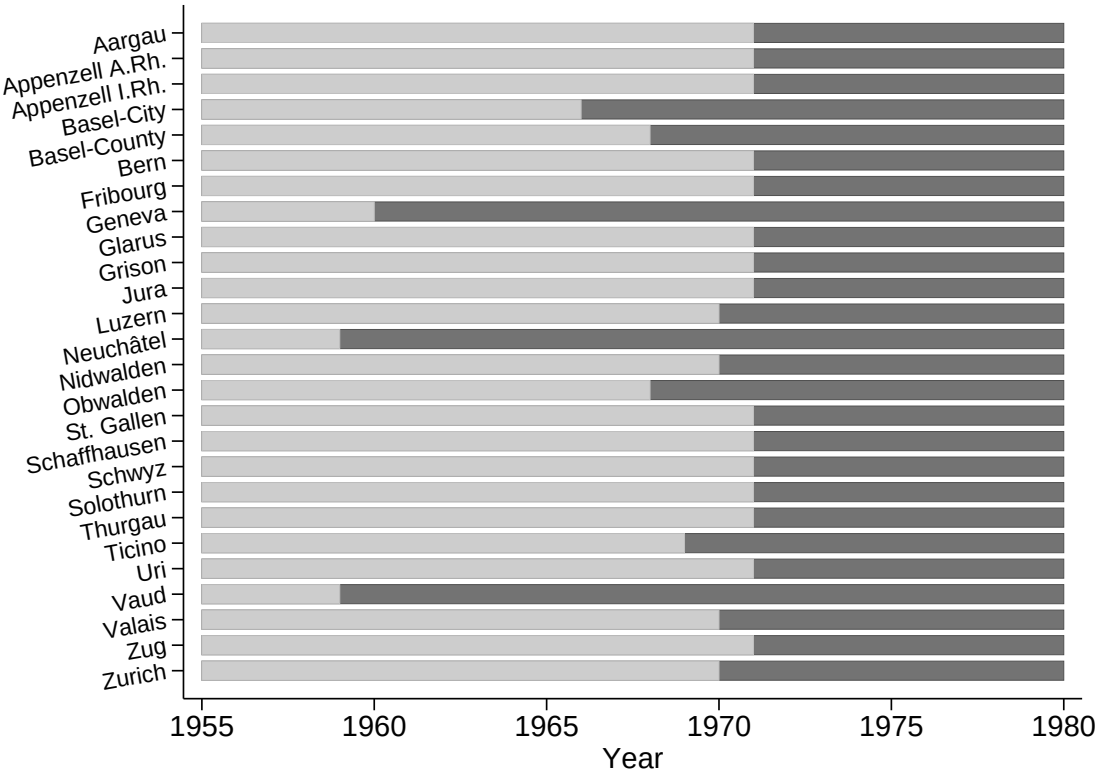


Figure 1: The graph visualizes the introduction year of female suffrage in Swiss cantons (either at the municipal, cantonal or national level). The darker bars mark the period after the introduction.

born in Bern in the same year could only participate in 1971 at the age of 36. We exploit this variation in the age at which women experience the introduction of formal political rights to identify whether women who mainly grew up in a world where they had a say in politics, when compared to those who experienced this opportunity later in life, make different life choices and adopt different attitudes.

4 Empirical strategy

We exploit the variation in the age at which women experienced the introduction of female suffrage across Swiss cantons. We see three main aspects that are important for our empirical

strategy. First, we adopt a life course perspective as a conceptual framework. Second, we propose a flexible functional form to capture the long-term effects of the exposure to female suffrage at different ages. Third, we rely on a rather restrictive fixed-effects strategy to control for determinants of life choices that might be correlated with the suffrage extension and thus are potential confounders.

4.1 A life course perspective on the effects of political empowerment

Our empirical design relies on a setting in which cohorts are affected at different ages with a treatment that has a differential impact depending on the age of the treated person. If repeated cross-sectional data on the long-term consequences are available, then in a multiple regression framework confounding factors due to people's cohort, age, or time effects as well as spatial effects related to the unit at which the treatment is introduced can be controlled for. This empirical approach has been prominently applied by, for example, Malmendier and Nagel (2011), Giuliano and Spilimbergo (2013), and Fuchs-Schündeln and Schündeln (2015). They exploit similar repeated cross-sectional variation to identify the effect of the duration of exposure to democracy on preferences for democracy (Fuchs-Schündeln and Schündeln, 2015), of the exposure to economic uncertainty on risk taking behavior (Malmendier and Nagel, 2011), and of experiencing a recession during one's formative years on political preferences (Giuliano and Spilimbergo, 2013). We analyze the effect of female suffrage from a life-course perspective that emphasizes how conditions in an early phase of a person's life affect attitudes, choices, and outcomes later on.

In our context, as in the approaches above, the idea of formative years is crucial to (empirically) model the effect of female suffrage on women's lives. As noted before, the literature suggests that some gender norms are already transferred during childhood. When it comes to politics, the time of adolescence and early adulthood is proposed as being the most formative for personality and attitude development. There is no consensus though on when the most influential phase

starts or ends exactly. An interesting age threshold is late adolescence, when socialization within the family becomes less important. We therefore define the reference group as including those women who were mainly socialized when their mother had or got the right to vote, experiencing its introduction before they turned 17. In contrast to this reference group, there are women who spent the main part of their formative years in an environment in which women were denied formal participation in democracy. These women experienced the introduction of female suffrage at the age of 17 or afterwards. We later on flexibly take their age at enfranchisement into account to capture differences in the degree of democratic socialization.

4.2 Estimation model

With the specification of our empirical model, we want to estimate how women who do not experience female suffrage up to the age of 17 or later are characterized relative to the women in the reference group, who experience the existence or the introduction of female suffrage before they turn 17. We expect that the differences in attitudes and life choices between those who are enfranchised later, compared to those who are socialized under female suffrage early on, will increase with the years a woman lived under a regime without female suffrage. In order to capture any such pattern, our main empirical specification includes a flexible form of the indicator for the group experiencing female suffrage after the age of 17. Specifically, we estimate the following linear probability model

$$Y_{ict} = \alpha + \sum_{k=1}^{B}(\tau_k \mathbb{1}_k) + \upsilon_{age\ x\ canton} + \mu_{cohort} + \eta_{canton\ x\ year} + X_i\beta + \gamma_m + \epsilon \qquad (1)$$

where Y is our dependent variable, measuring some outcome for individual i in canton c at time t. We define B age groups for women who experienced female suffrage at the age of 17 or later. $\mathbb{1}_i$ is an indicator variable set to one if a woman's age at which she experienced enfranchisement falls into group k, and τ_k is the estimate of the difference in the outcome variable compared to that of the reference group. In our main specification, we define four groups as follows: $\mathbb{1}_1 =$

$\mathbb{1}_{(age\_vote_i>16 \ \& \ age\_vote_i\leq 20)}$; $\mathbb{1}_2 = \mathbb{1}_{(age\_vote_i>20 \ \& \ age\_vote_i\leq 25)}$; $\mathbb{1}_3 = \mathbb{1}_{(age\_vote_i>25 \ \& \ age\_vote_i\leq 35)}$; $\mathbb{1}_4 = \mathbb{1}_{(age\_vote_i>35)}$. We cluster the standard errors at the level of the canton, i.e. the level at which our identifying variation arises.

4.3 Control strategy

In order to isolate the effect of enfranchisement from other canton, time, cohort, or age specific factors that might themselves be correlated with our outcome variables, we include a restrictive set of fixed effects in our model. In our main specification, we include $\upsilon_{age\ x\ canton}$, which is a vector of canton specific age fixed effects. The age effects allow us to factor out life-cycle effects; for instance, older women being more likely to be divorced or to work part time. We further allow these life-cycle effects to differ across cantons. This might be relevant if the age effects systematically differ across cantons that introduce female suffrage earlier or later. We control for μ_{cohort}, which is a vector of birth-cohort fixed effects. This allows us to rule out any cohort specific effects. Moreover, these fixed effects control for any national policies targeted at particular cohorts, for instance, an adjustment of the retirement age. We include $\eta_{canton\ x\ year}$, which is a vector of canton-times-year effects. This allows us to pick up region-specific time varying shocks related to, for example, macroeconomic development and differences in the local labor market. Any measured outcome difference between the two groups of women therefore cannot be explained by differences in the current institutions, the economic situation, the political environment (or any canton-times-year unobservables) that affect all the women in a canton alike.

Moreover, we include a vector X_i including an additional individual specific characteristic likely to be predetermined (and correlated with people's norms), i.e. individuals' religious denomination. Finally, we take into account a set of municipality fixed effects γ_m. The latter control for time invariant differences in general attitudes towards women and geographical conditions across municipalities.

The only relevant dimension we cannot control for are cohort-times-canton effects as this is exactly the level from which our identifying variation arises. Our identification thus hinges on the assumption that there are no unobserved factors at the cohort-canton level that correlate with the age at enfranchisement. We are not aware of anything that could have coincided and was not related to the introduction of female suffrage. However, we still try to validate the assumption in the discussion in Section 7.2.

5 Data

In our main empirical analysis, we draw on harmonized micro-data of the Swiss census conducted in the years 1980, 1990, 2000, and 2010. This data covers basic demographic information for the whole Swiss population until 2000 and for a large sample of about 5 percent in 2010. Based on this repeated cross-sectional data on demographic characteristics of over 2 million Swiss women, we can apply the empirical strategy described above.

In our approach, it is important to be able to control for age-specific fixed effects. We therefore restrict the sample such that we have an overlap in the variable age for women in the reference group and the group of women experiencing the introduction of female suffrage at the age of 17 or later. Accordingly, the included age range is restricted to lie between 26 and 67 and covers the cohorts born between 1913 and 1984. The youngest possible age we can observe of women experiencing the introduction of suffrage after the age of 16 is 26, as the latest introduction took place in 1971 and individuals aged 17 in this year were born in 1954 and thus were 26 in 1980 (our first observed year). The oldest individuals in the reference group to experience it before the age of 17, are aged 67, respectively. Individuals aged 16 in the year of the earliest introduction (1959) were born in 1943 and were 67 in 2010. The highest age at which women in our sample experience the introduction of female suffrage is 58. Figure A1 in the Appendix visualizes the distribution of the age at which women were enfranchised in the main sample of Swiss females.

Our main sample is furthermore restricted to women who are still living in the same canton where they were born when observed. This criterion allows us to specify the age at which they experienced the introduction of female suffrage. While the census data does not include information on the canton of birth, it contains an indicator of whether an individual still lives in the canton of birth.

Our main *explanatory* variable *suffrage at* age_{l-h} captures women's age at enfranchisement and is defined as an indicator set to one if an individual experienced the introduction of female suffrage between the age of l and h. Depending on the sample, different age ranges are specified.

The *dependent* variables of our main empirical analysis are defined as follows:

- *Working*: Is an indicator set to one if an individual indicates being active in the labor market. This might be full or part time.
- *Part-time*: Is an indicator set to one if an individual who is working indicates she works part time.
- *Housewife*: Is an indicator set to one if an individual indicates that she is working at home and is not active in the labor market.
- *Ever married*: Is an indicator set to one if an individual's marital status is married, widowed, or divorced, and thus indicates that the individual is or was married.
- *Divorce*: Is an indicator variable set to one if an individual indicates she is divorced.
- *Low edu.*: Is an indicator set to one if an individual indicates that her highest educational attainment is lower secondary education (Germ.: Sekundarstufe I).
- *High edu.*: Is an indicator set to one if an individual indicates that her highest educational attainment is tertiary education (Germ.: Tertiärstufe).

The additional data sets including information about women's attitudes (the Swiss Household Panel) and political behavior (the Swiss Electoral Studies) are introduced in the respective sections when they are analyzed.

6 Results

The following subsection presents the results of our main empirical analysis on how socialization in a world in which females have a say in politics affected women's major life choices. Thereafter, we study two sources of survey data. First, we test whether there are consistent differences in women's political behavior. Second, we explore the potential psychological mechanism and test for the effect of suffrage on women's efficacy and perception of control. In a further step, we investigate potential effect heterogeneity, differentiating between relatively more conservative and more liberal municipalities. In a separate Section 7, we discuss potential challenges to the identification and interpretation of our findings.

6.1 Female suffrage and women's major life choices

Figure 2 presents preliminary graphic evidence on whether women who experienced enfranchisement before the age of 17 (the *Early* group) differ from those who experienced it later in life (the *Late* group). Raw means by age of our eight main dependent variables are shown separately for the two samples.

The raw differences reveal that women experiencing the introduction of female suffrage later in life (the hollow diamonds) are, on average, less likely to work across their lifespan compared with the group experiencing it early (the solid circles). This also seems to hold for women who were at some time married. Further, they seem to be more likely to stay at home, slightly more likely to marry, less likely to divorce, and more likely to attain a lower level of education. These differences are consistent with the hypothesis that the socialization in a world where women have a say in politics changes female life choices in a direction that suggests stronger emancipation.

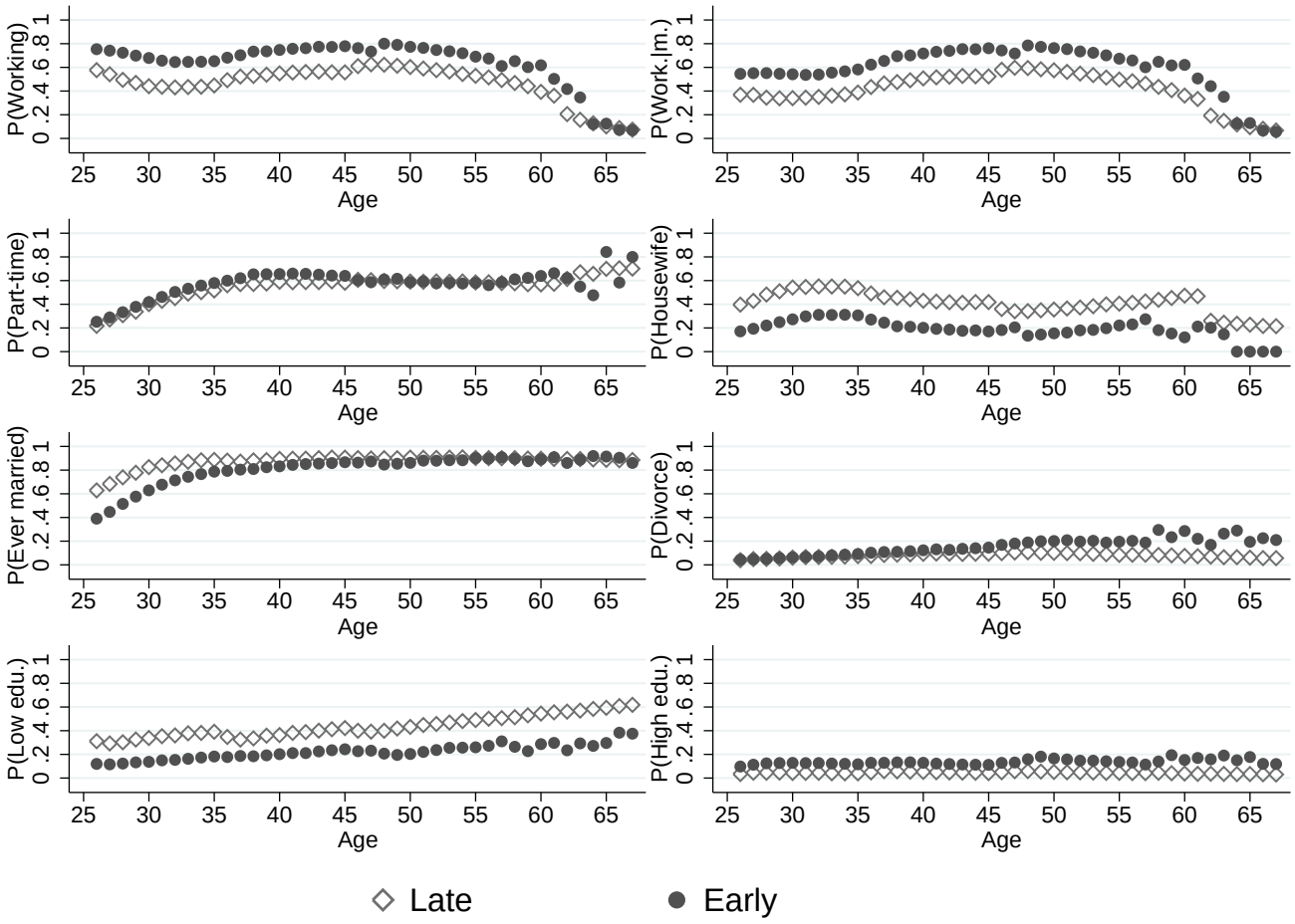


Figure 2: These figures show the raw means of our dependent variables by age for two groups in the main sample of Swiss women. The *Early* group includes women who experienced enfranchisement before the age of 17. Women in the *Late* group experienced it later.

However, this evidence is only suggestive as, for example, birth cohorts and individuals in cantons that introduced female suffrage early might differ systematically. We therefore proceed by applying the estimation strategy described above.

Table 1 reports the estimation results for our eight main dependent variables. We adopt the flexible specification with four age ranges for women experiencing the introduction of female suffrage at the age of 17 or later. The coefficients are always reported in comparison with the reference group, i.e. women enfranchised before the age of 17. Column (1) shows that women are less likely to work the later in life they experienced female suffrage. The difference ranges from 1.5 percentage points for those who experienced it rather early during their adolescence

Table 1: Female suffrage and the life choices of Swiss women

	Working	Working given ever mar.	Part-time given working	House-wife	Ever married	Divorced given ever mar.	Low edu.	High edu.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Suffrage at								
age_{0-16}	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
age_{17-20}	–0.015***	–0.006	0.013***	0.016***	0.017***	–0.014***	0.024**	–0.003
	(0.005)	(0.004)	(0.005)	(0.005)	(0.003)	(0.004)	(0.010)	(0.004)
age_{21-25}	–0.024***	–0.011*	0.033***	0.021***	0.022***	–0.021***	0.042***	–0.006*
	(0.006)	(0.006)	(0.007)	(0.006)	(0.004)	(0.004)	(0.012)	(0.003)
age_{26-35}	–0.042***	–0.025**	0.045***	0.038***	0.026***	–0.034***	0.064**	–0.004
	(0.011)	(0.011)	(0.008)	(0.012)	(0.003)	(0.006)	(0.023)	(0.006)
age_{36-58}	–0.060***	–0.040**	0.052***	0.053***	0.023***	–0.039***	0.061*	0.004
	(0.016)	(0.016)	(0.011)	(0.017)	(0.005)	(0.009)	(0.031)	(0.007)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age x canton FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton x year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municip. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep.	0.55	0.49	0.54	0.34	0.82	0.09	0.35	0.07
No. of obs.	2,462,685	2,021,168	1,355,494	2,462,685	2,462,685	2,021,168	2,462,685	2,462,685
No. of clusters	26	26	26	26	26	26	26	26
R^2	0.18	0.17	0.08	0.12	0.16	0.05	0.21	0.07

Notes: Main sample of Swiss women. Standard errors are clustered at the cantonal level and reported in parentheses. Controls include indicators for individuals' religious denomination.
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$.
Data source: Swiss population census individual data, 1980-2010.

or adulthood (age 17-20) up to 6 percentage points for those who experienced it rather late in life (age 36-65), when presumably many relevant life choices had been made. Given that the average female labor force participation rate in our sample is about 55 percent, this latter difference is sizable and amounts to about 11 percent. In column (2), somewhat smaller but still economically and statistically significant effects are estimated for women who were ever married. These effects might reflect a core manifestation of emancipation, when married women engage

in paid work. Thus, women who mainly grew up in a world in which they had a political say are systematically more likely to participate in the labor force (a factor largely neglected in the economic literature on female labor force participation, see, e.g., the reviews in Fernández 2013 or Gaddis and Klasen 2014). These findings are consistent with our main hypothesis. However, contrary to the specific prediction that marginal effects are smaller when women experience enfranchisement later in life than early in life, we find that for employment sizable and statistically significant differences emerge even between the groups who were enfranchised at age 36 to 58 rather than at age 26 to 35. This implies that women affected after the age of 26 still changed their labor market participation decisions. Thus, at least for labor force participation, the impressionable years clearly reach beyond early adulthood.

According to column (3), women who experienced the introduction of female suffrage later are not only less likely to work, but given that they work, they are also more likely to work part-time. The difference amounts to between 1 and about 5 percentage points (and thus for the latter category to about 9 percent of the average probability of working part-time). Socialization in a world with politically empowered women thus affects female labor market participation along two margins, the extensive margin, i.e. the likelihood of working, and the intensive margin, i.e., working time. In column (4) we find that women enfranchised later are consistently more likely to dedicate their time to housework.

Columns (5) and (6) in Table 1 explore our hypotheses with regard to marital decisions. Consistent with the notion that female empowerment increases the self-sufficiency of women, we find that the group socialized in an environment without female suffrage is more likely to marry. The effect barely increases in the age of enfranchisement and ranges around 2 percentage points. The impressionable early years are obviously more important in shaping life choices that are made early in life. In line with the idea that empowered women are more independent and can support themselves, those women experiencing enfranchisement later are also less likely to divorce. The decision to divorce remains an option over the lifetime of married people and seems to be affected by differences in the age of enfranchisement later in life as well. In sum,

women socialized in a setting where they are granted formal political rights are less likely to marry, and if they marry, are more likely to divorce.

Finally, in columns (7) and (8), we investigate differences in female educational attainment or human capital investment. We find that women enfranchised later in life are more likely to be educated to a lower secondary level, the difference amounting to between 2 to 6 percentage points. There is little evidence for a systematic effect on achieving a tertiary education, indicating that political empowerment primarily affected the decision to engage in some professional education after mandatory schooling.

When interpreting the documented estimates, it is important to note that they are not conventional treatment effect estimates capturing effects materializing immediately after some *treatment*. They are, rather, estimates of the accumulated differences in women's life choices over their life course. The decisions leading to these differences were made given their situation during socialization and might have been taken before or after the introduction of female suffrage. Women in the reference group, growing up and being socialized in a world where women have a say in politics, made their decisions under the resulting mind-set. Women in the other groups, experiencing enfranchisement later in life and therefore being socialized largely in a world where women have no say in politics, made their life choices predominantly under the corresponding attitudes and experiences. Thus, the estimates capture how much more likely a woman is, for example, to work years later when she experienced female political empowerment before the age of 17, making all relevant decisions after the introduction of female suffrage, compared to a woman experiencing enfranchisement later in life and making at least some of the decisions before the introduction of female suffrage. This consideration is particularly important when interpreting the effects for the groups experiencing enfranchisement late in life. In our set of outcomes, there are some which are expected to be amenable to change even late in life, such as the participation in the labor market or divorce. Other outcomes like being married or educational attainment are much less amenable after a certain age (and once they have materialized). It is therefore reasonable to observe that the differences in outcomes vis–à–vis the reference

group are increasing in the age of enfranchisement for outcomes which remain clearly amenable, while they stabilize for the others. This holds in our data for the difference in the probability of working, which increases in the age of enfranchisement, as women might at any time decide to enter the labor market, while the differences in the probability of ever being married or of attaining a low level of education are rather stable independently of when after the age of about 25 a woman experienced enfranchisement.

Overall, we find strong evidence that the socialization in a world in which women have a say in politics changes women's life choices. The later in life they experience female empowerment the less emancipatory, or the more traditional, are their life choices. They are less likely to participate in the labor force, more likely to be married and less likely to get a divorce. Consistent with lower expected returns to education, they are more likely to be educated only to the minimum level of secondary school. These findings are consistent with, and strongly support, the notion that political empowerment has had far reaching consequences for women's lives and has had the force to stimulate changes in gender roles and self-concepts that map into revealed preferences.

6.2 Female suffrage and women's political behavior

Theories on habit formation and socialization in political participation (see, e.g., Coppock and Green, 2016; Akbulut-Yuksel et al., 2017; Fujiwara et al., 2016) would suggest that women exposed to political rights later in life are also less likely to participate in politics and have less clear preferences about political issues than those exposed to them early in life.

We draw on the cumulative data set of the Swiss Electoral Studies (Selects) between 1971 and 2011 to test this hypothesis.[8] In each survey about two to four thousand individuals are interviewed in the aftermath of Swiss national elections that take place every four years. However, the same questions are not asked in every survey. Moreover, we concentrate on waves

[8] The data is available at www.selects.ch.

Table 2: Female suffrage and women's political behavior

	Voting participation	Late elections decision	Party attachment	Discuss election often	Politics is complicated	Political interest
	(1)	(2)	(3)	(4)	(5)	(6)
Suffrage at						
age_{0-16}	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
age_{17-25}	–0.068	0.126**	–0.024	–0.066	0.031	–0.051
	(0.047)	(0.060)	(0.058)	(0.086)	(0.038)	(0.076)
age_{26-58}	–0.107**	0.262***	–0.171***	–0.266***	0.122	–0.170
	(0.048)	(0.088)	(0.039)	(0.091)	(0.079)	(0.121)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes
Canton x year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep.	0.56	0.52	0.38	0.79	0.58	2.46
Age range	20-60	21-60	20-60	41-60	20-60	20-60
No. of obs.	2,606	1,303	2,584	732	1,711	2,608
No. of clusters	26	25	26	21	26	26
R^2	0.10	0.22	0.11	0.08	0.26	0.17

Notes: The sample includes women who still live in the canton where they lived as a child. Further, as the nationality is not reported, we restrict the sample to women who report being eligible to vote in the canton they live in. The age ranges of the respective samples are reported, as not all the items are available in every year. Controls include indicators for religious denomination and language region. Standard errors are clustered at the cantonal level and are reported in parentheses.
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$.
Data source: Swiss Electoral Studies (Selects), cumulative file 1971-2011.

in which individuals reported the canton they lived in as a child. This allows us to calculate the age at which they experienced enfranchisement as before. Given the nature of this data, we end up with considerably smaller samples than those from the census data. Accordingly, we concentrate on a slightly less restrictive specification with age fixed effects that do not differ across cantons. Moreover, we distinguish between two age ranges (instead of four) for women who were enfranchised late in their life.

Table 2 presents the estimation results for women's reported political behavior and preferences. Despite the small sample, a systematic pattern emerges. Column (1) shows that women who experienced female suffrage later in life are systematically less likely to report having voted in the last federal election. While the confidence intervals are wide, the effect seems sizable, amounting to around 11 percentage points, with an average participation rate of 56%. Columns (2) to (6) further indicate that women enfranchised later make their decision about which party to vote for later (measured by the probability of making the decision later than months/weeks before the election), are less likely to report having a clear party attachment, are less likely to report frequently discussing elections, are slightly more likely to support the statement that politics is complicated, and report a slightly lower level of political interest (on a scale from 1 "not interested at all" to 4 "very interested"). While not all of these effects are statistically significant at conventional levels, they still suggest that the group of women socialized without access to formal political participation rights has a less clear political orientation and engages systematically less in politics.

6.3 Mechanism: Female suffrage and women's efficacy and perceptions of control

As motivated in Section 2, a potential mechanism for the effect of female suffrage on life choices puts forward that formal political participation rights increase women's (perceived) efficacy and control. We draw on two waves of the Swiss Household Panel (SHP) survey in 2012 and 2015 to investigate this conjecture. The two survey waves are particularly interesting as they include a battery of questions measuring individuals' efficacy. However, the sample is rather small and we have no information on the canton in which respondents were living during their childhood. Further, the highest age at which a woman in the specific sample experienced the introduction of female suffrage is 31. Given these limitations, the assignment of the age at which women were enfranchised might well be fuzzy and the results have to be interpreted with caution. We

Table 3: Female suffrage and women's perception of control

	Little influence on life	Wants in own hands	Find a way to succeed	Others determine what I do	Can do what I want
	(1)	(2)	(3)	(4)	(5)
Suffrage at					
age_{0-16}	Ref.	Ref.	Ref.	Ref.	Ref.
age_{17-25}	0.694	0.281	–0.244	0.788*	–0.497
	(0.432)	(0.279)	(0.178)	(0.431)	(0.363)
age_{26-31}	0.838*	0.064	–0.554	1.240*	–0.772
	(0.413)	(0.501)	(0.328)	(0.619)	(0.504)
Controls	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes
Canton x year FE	Yes	Yes	Yes	Yes	Yes
Mean dep. var.	4.34	7.41	7.94	3.30	7.00
No. of obs.	1,681	1,686	1,688	1,683	1,687
No. of clusters	26	26	26	26	26
R^2	0.07	0.06	0.06	0.09	0.08

Notes: The sample includes women who indicate having lived in Switzerland since their birth, only holding Swiss citizenship, and whose household has not moved since the last survey wave. If the information is available, we further drop observations from those women who moved into the current place of residence after the age of 15. However this is only the case for a very small fraction of the sample. The sample covers the age range between 58 and 72. Controls include individuals' religious denomination and spoken language. Standard errors are clustered at the cantonal level and are reported in parentheses.
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$.
Data source: Swiss Household Panel (SHP), waves 2012 and 2015.

again specify two age ranges for women experiencing the introduction of female suffrage after the age of 17.

Table 3 reports the estimated effects on women's reported perception of control if they experienced the introduction of female suffrage late in their formative years. According to columns (1) to (5), these women more strongly agree with the statement that they have little influence on life events (on a scale from 0 "completely disagree" to 10 "completely agree"), but seem not less likely to agree with the statement that what they want is in their own hands (on a scale from

0 "completely disagree" to 10 "completely agree"), seem to agree less with the statement that when they really want to do something, they usually find a way to succeed at it (on a scale from 0 "completely disagree" to 10 "completely agree"), more strongly agree with the statement that others determine what they can do (on a scale from 0 "completely disagree" to 10 "completely agree"), and seem to agree less with the statement that they can do everything that they want to do (on a scale from 0 "completely disagree" to 10 "completely agree").

While not all the differences are statistically significant at conventional levels, overall they point in the direction that women who were enfranchised later in their life feel less efficacious and in control of their lives compared to those women who mainly grew up in an environment where women had a formal say in politics.

6.4 Heterogeneity: Conservative vs. liberal municipalities

Finally, we investigate whether women in conservative municipalities are affected more by female suffrage. This analysis takes up the idea that the attitudes prevalent around the introduction of formal participation rights for women might moderate the effect of female suffrage on emancipatory life choices. We see two competing hypotheses. The first could be called a *confirmation hypothesis*. Women from municipalities that were relatively open and where men supported gender equality more are confirmed in their aspirations with the adoption of female suffrage and motivated to implement their life plans. However, there is also a second one that could be called a *revelation hypothesis*. For women in relatively conservative municipalities a new world is opened up that strongly shapes their norms, and ultimately, decisions over the life course. According to the latter hypothesis, institutional change in the form of female suffrage affects outcomes more if at the time the traditional norms still prevailed. In contrast, the former hypothesis emphasizes that women who are prepared, in terms of their attitudes, for gender equality are affected relatively more by an institutional change that brings attitudes and laws into congruence.

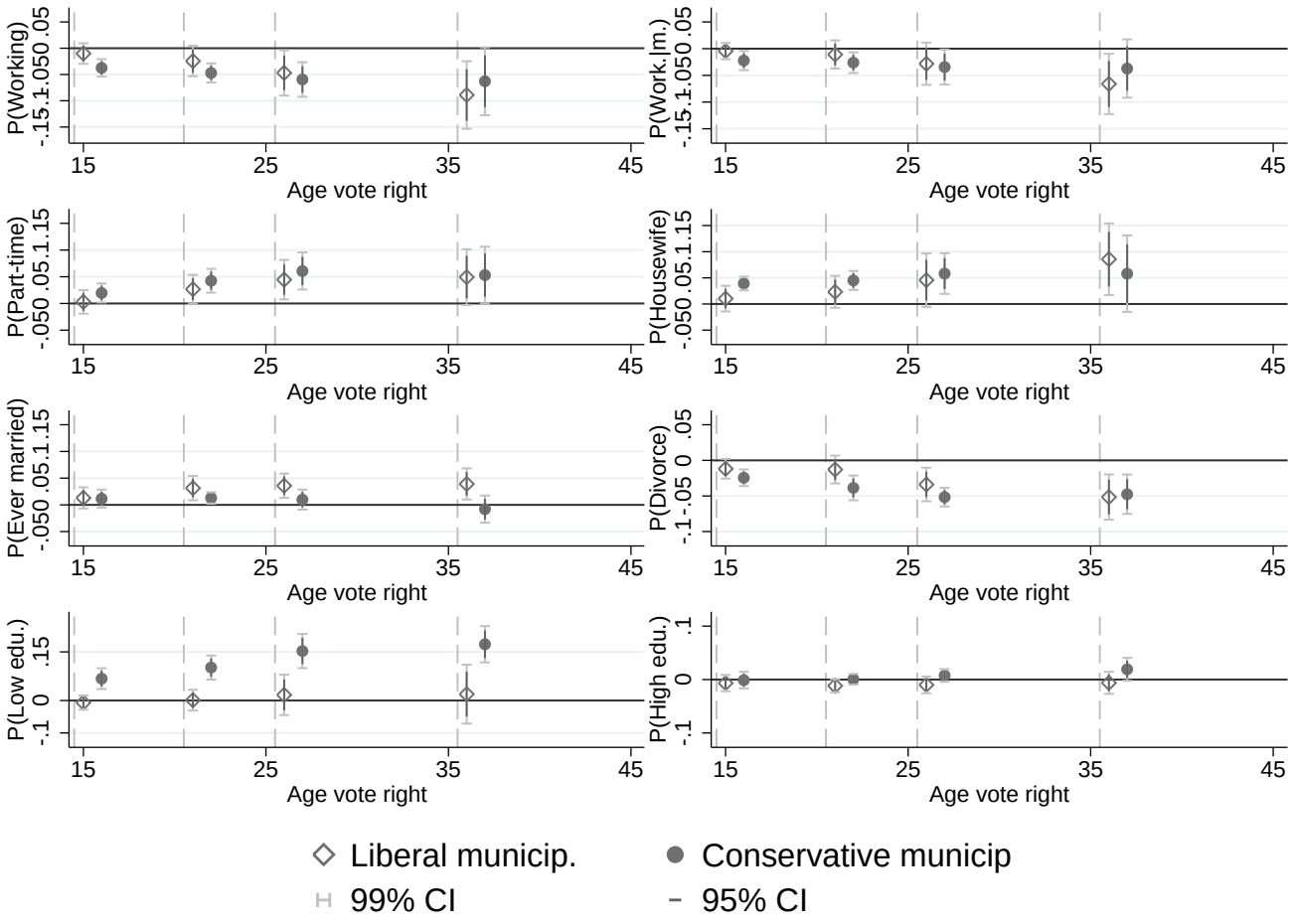


Figure 3: These figures show the estimated differences for our eight main dependent variables in liberal and conservative municipalities for the main sample of Swiss females who live in their birth municipality when they are observed. The estimation results are reported in Table A2 in Appendix A.I.

We test the idea of effect heterogeneity across municipalities, drawing on our main sample of Swiss women and their life choices. We approximate whether a municipality was liberal or conservative with respect to norms regarding the role of women in society by drawing on the municipality level voting outcomes in the first federal ballot on the introduction of women's voting rights in Switzerland in 1959. The share of yes votes for this constitutional amendment captures local men's preferences before any canton introduced female suffrage. The right to vote for women was clearly rejected by the male Swiss citizenry. Still, there was a considerable variation in support for the referendum across municipalities, ranging from 0 to 95 percent, with a mean of 33.1 percent. We define conservative municipalities, relative to other municipalities

in the same canton, as those that showed a below average approval rate in the referendum. This classification picks up potentially many factors besides specific preferences that are correlated with the vote outcome, such as urbanization which has to be kept in mind when interpreting the results.[9]

We estimate the differential long-term effects of female suffrage interacting the indicators for being enfranchised late with the indicator for living in a historically conservative municipality. The results are visualized in Figure 3 and reported in Table A2 in Appendix A.I. Overall, we observe rather similar patterns for labor market choices and divorce. For marriage, statistical uncertainty hampers an interpretation. Different patterns emerge for education across the two groups of municipalities when compared to the results in Section 6.1. A late enfranchisement increases the probability of only attaining a low educational level in the more conservative municipalities but not in the more liberal ones. For women in the former municipalities, the effects amount to between 7 and 15 percentage points, while they are only between -0.006 and -0.02 percentage points, and not statistically significant, for women in historically more liberal municipalities.

Female empowerment thus seems to have most strongly affected those women who lived in conservative environments, which are places where female suffrage was introduced against the will of a majority of men (and many older women). Female suffrage revealed and opened up new perspectives that dramatically changed life courses. However, women in more liberal municipalities, where men were decisively for the introduction of female suffrage, were affected as well. This suggests that in our context the effects of changes in attitudes and norms have been magnified as participation rights were institutionally confirmed and implemented.

[9] In order to make sure that women were exposed to these attitudes at the time of the introduction of female suffrage, the sample is restricted to women who live in the same municipality where they lived after their birth in this sub-analysis.

7 Discussion

This section discusses further results and challenges to identification and to the interpretation of our results due to potential systematic sorting and general societal changes in the middle of the 20th century in Switzerland. We present evidence that validates our conclusion that female suffrage changed women's life choices.

7.1 Effects on Swiss men

An analysis of Swiss men's life choices in relation to the introduction of female suffrage helps to better understand the patterns for women. It is also interesting in its own right as there are numerous potential spillover effects (see, e.g., Dahl et al. 2018 for the effects of women in male teams). Specifically, we can study whether men make different labor market decisions when they have experienced politically empowered women as early as during adolescence or only later on. Effects might also occur via the labor market if men compete with women from the same cohort in local labor markets. Women who experienced enfranchisement later and are thus less likely to engage on the labor market might make it easier for men of the same age to find and keep employment. They might also be less likely to work part-time, given that women stay at home. For marital decisions, we expect to see similar patterns, given that there are small age differences at marriage between spouses. Patterns in education are particularly interesting, as growing up in a conservative environment without female suffrage might also capture a general educational alienation.

Table 4 summarizes the estimates for the main outcome variables and the sample of Swiss men. The sample is composed just like that for Swiss women. We observe no differences in men's labor force participation with regard to the extensive margin in column (1) in response to when they experienced women's enfranchisement. This finding also indicates that the pattern for women does not reflect some systematic cohort-canton specific labor market demand effects that affect

Table 4: Female suffrage and Swiss men's life choices

	Working	Working given ever mar.	Part-time given working	Taking care of home	Ever married	Divorced given ever mar.	Low edu.	High edu.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Suffrage at								
age_{0-16}	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
age_{17-20}	–0.001	–0.000	–0.007***	0.002*	0.022***	–0.007***	0.009*	–0.010***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.004)	(0.002)	(0.005)	(0.004)
age_{21-25}	0.001	0.002	–0.008***	0.001	0.022***	–0.010***	0.006	–0.019***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.003)	(0.005)	(0.003)
age_{26-35}	–0.003	–0.002	–0.012***	0.005**	0.026***	–0.020***	0.021**	–0.029***
	(0.004)	(0.003)	(0.003)	(0.002)	(0.003)	(0.004)	(0.009)	(0.010)
age_{36-58}	–0.012	–0.010*	–0.014***	0.013**	0.024***	–0.026***	0.018	–0.029**
	(0.007)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.011)	(0.013)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age x canton FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton x year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municip. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep.	0.91	0.91	0.06	0.01	0.77	0.07	0.19	0.22
No. of obs.	2,686,428	2,062,117	2,437,607	2,686,428	2,686,428	2,062,117	2,686,428	2,686,428
No. of clusters	26	26	26	26	26	26	26	26
R^2	0.34	0.43	0.05	0.10	0.25	0.04	0.15	0.06

Notes: Sample of Swiss men. Controls include indicators for individuals' religious denomination. Standard errors are clustered at the cantonal level and reported in parentheses.
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$. *Data source*: Swiss population census individual data, 1980-2010.

employment careers. With regard to the intensive margin in column (3), the correlations for working part-time are consistent with their spouses being more likely to stay at home. For the status of ever being married in column (5), the effect sizes closely mirror those for women. For the status of divorce in column (6), they go in the same direction but differ slightly in size. The results in columns (7) and (8) suggest that men's educational choices were at most minimally affected at the lower end of the distribution from the experience of women having the right to

vote. Only 19% of men in our sample have a low level of formal education while the respective fraction among women is 35%. On the upper end, sons who were raised by a mother who had or received the right to vote early were also slightly more likely to achieve a tertiary education.

In our reading, the results for men support the interpretation that the identified differences between those women growing up in a world in which women have a say in politics and those experiencing the introduction of formal political rights for women later in life are due to women's reactions and do not merely mirror men's life choices (or some correlated contextual factor like educational alienation).

7.2 Sorting: Female suffrage and migration

People move for love and work when pursuing their life goals but they likely also take the prevailing norms and attitudes across regions into account when deciding where to live. Accordingly, a concern for the interpretation of the observed empirical patterns in women's life choices might be that they reflect regional sorting triggered by the staggered introduction of female suffrage.

Imagine the following scenario: the cohorts of women born between, say, 1930 and 1945 decide on where to live and work after mandatory school. The relatively more progressive young women from conservative regions move to more progressive regions within Switzerland (to work, live and marry), where they are more likely to be exposed to female suffrage. Vice versa, relatively more conservative young women from progressive regions might be willing to take up a job, live and marry in more conservative parts of Switzerland, where female suffrage is adopted later. Under this scenario our restricted sample focusing on those women who stayed in their canton of birth might reflect a selection of relatively more conservative women in conservative cantons and relatively more progressive women in more progressive cantons.

In the following, we discuss the results of two empirical tests that speak against the alternative interpretation in terms of sorting. First, there is the evidence from the heterogeneity analysis presented in Section 6.4 above. With sorting, we would expect progressive women to move

Table 5: Female suffrage and Swiss women's mobility

Dependent variable: Probability of being born in the canton one lives in

	Suffrage at age_{0-16}	age_{17-20}	age_{21-25}	age_{26-35}	age_{36-58}	age_{17-20} x *Early ct.*	age_{21-25} x *Early ct.*	age_{26-35} x *Early ct.*	age_{36-58} x *Early ct.*
(1)	Ref.	0.008	0.018	0.038*	0.051*				
		(0.012)	(0.016)	(0.022)	(0.030)				
(2)	Ref.	0.007	0.024	0.028	0.024	–0.004	–0.032	–0.019	0.014
		(0.013)	(0.018)	(0.028)	(0.034)	(0.013)	(0.020)	(0.037)	(0.059)

Notes: Sample of all Swiss women. *Early ct.* is an indicator for the three cantons that adopted female suffrage in 1959/1960, i.e. Vaud, Neuchâtel, and Geneva. Standard errors are clustered at the cantonal level and reported in parentheses. Estimates control for individuals' religious denomination, age x canton FE, birth year FE, canton x year FE, and municipality FE. The number of observations is 4,034,853, the number of clusters 26, the R^2 is 0.09 in row (1) and 0.09 in row (2).
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$.
Data source: Swiss population census individual data, 1980-2010.

away from more conservative municipalities and much less so from more liberal municipalities. Accordingly, when restricting our analysis to women in liberal municipalities, we would expect to see no or very small effects of being enfranchised later. However, the previous analysis just shows somewhat smaller effects of female suffrage on women's labor force participation in liberal municipalities compared to the overall sample as well as the sample of conservative municipalities.

Second, we can apply a test based on the information on whether a woman still lives in the canton where she was born.[10] If the observed differences were due to some sorting of progressive women into progressive cantons (introducing female suffrage earlier) and some sorting of conservative women into conservative cantons (introducing female suffrage later), we would expect to observe that the likelihood of being born in the canton of residence decreases for the age that women were when female suffrage was introduced in the corresponding canton. Moreover, under the sorting scenario, more women should have left conservative cantons and, in parallel, a larger portion of the female population in liberal cantons would have immigrated. Thus, the relation

[10] We have no information on the canton of birth in our data set, which would allow us to test the selection argument directly. However, the data contains an indicator on whether the canton an individual resides in is his or her canton of birth.

between the likelihood of being born in the canton of residence and the age at enfranchisement should be even stronger for the cantons that adopted female suffrage early.

To test these predictions arising from sorting, we re-estimate our basic model, taking the probability that a woman was born in the canton she lives in as the dependent variable. The sample now includes all Swiss women, irrespective of whether they were born in the canton they live in or not. As is evident from Table 5 row (1), we do not observe a negative (but rather a positive) coefficient for the difference in the likelihood of being born in the canton one lives in between women who were enfranchised late and those in the reference group. Row (2) shows that there is also no systematic negative difference (when the main effect and the interaction effect are added) for cantons that introduced female suffrage before 1960, i.e., Vaud, Neuchâtel, and Geneva. We conclude that it is rather unlikely that migration ractions drive the documented differences.

7.3 General societal change

We argue that female suffrage affected attitudes and norms contributing to societal change. However, evolving attitudes about women's role in society might well have driven the introduction of female suffrage in the different cantons (and most certainly did) as well as the outcomes in women's life choices that we observe in our empirical analysis. In order to capture the effect of a change in formal institutions on norms and behavior in this bidirectional relationship, we have so far estimated specifications with an extensive set of fixed effects controlling for a large set of potential confounders. Any remaining societal change would have to be cohort-canton specific to explain our statistical findings. This is the only additional level we cannot control for as it coincides with the level from which we derive our variation.

In this section, we present two approaches to assess how likely our main results are due to some general societal changes that are cohort-canton specific rather than due to the introduction of female suffrage per se.

Effects on women of foreign nationality

Table 6: Female suffrage and the life choices of women of foreign nationality

	Working	Working given ever mar.	Part-time given working	House-wife	Ever married	Divorced given ever mar.	Low edu.	High edu.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Suffrage at								
age_{0-16}	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
age_{17-20}	0.017	0.024	0.007	–0.027	0.009	–0.017	0.013	–0.012
	(0.017)	(0.021)	(0.038)	(0.019)	(0.033)	(0.019)	(0.034)	(0.014)
age_{21-25}	0.011	0.052*	0.006	–0.027	0.060*	0.005	0.011	–0.027
	(0.022)	(0.028)	(0.055)	(0.024)	(0.032)	(0.021)	(0.028)	(0.023)
age_{26-35}	–0.034	0.002	0.067	0.000	0.127***	0.017	–0.005	–0.028
	(0.044)	(0.054)	(0.057)	(0.045)	(0.036)	(0.032)	(0.049)	(0.040)
age_{36-58}	–0.020	0.047	0.165*	–0.058	0.144**	0.044	–0.017	–0.017
	(0.064)	(0.073)	(0.090)	(0.059)	(0.062)	(0.041)	(0.065)	(0.054)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age x canton FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton x year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municip. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep.	0.74	0.68	0.37	0.14	0.65	0.08	0.35	0.08
No. of obs.	37,224	23,981	27,219	37,224	37,224	23,981	37,224	37,224
No. of clusters	26	25	25	26	26	25	26	26
R^2	0.17	0.18	0.13	0.13	0.18	0.10	0.25	0.10

Notes: Sample of non-naturalized women. Controls include indicators for individuals' religious denomination. Standard errors are clustered at the cantonal level and reported in parentheses.
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$. *Data source*: Swiss population census individual data, 1980-2010.

In Switzerland, there is a substantial number of women who do not hold Swiss citizenship and thus are excluded from voting.[11] Many of these women were born in the same cantons, during the same years and grew up in the same setting as Swiss women in our main sample. They thus form a comparison group that is not directly affected by the institutional change. Still, we cannot exclude that these foreign women were affected through their female Swiss peers from

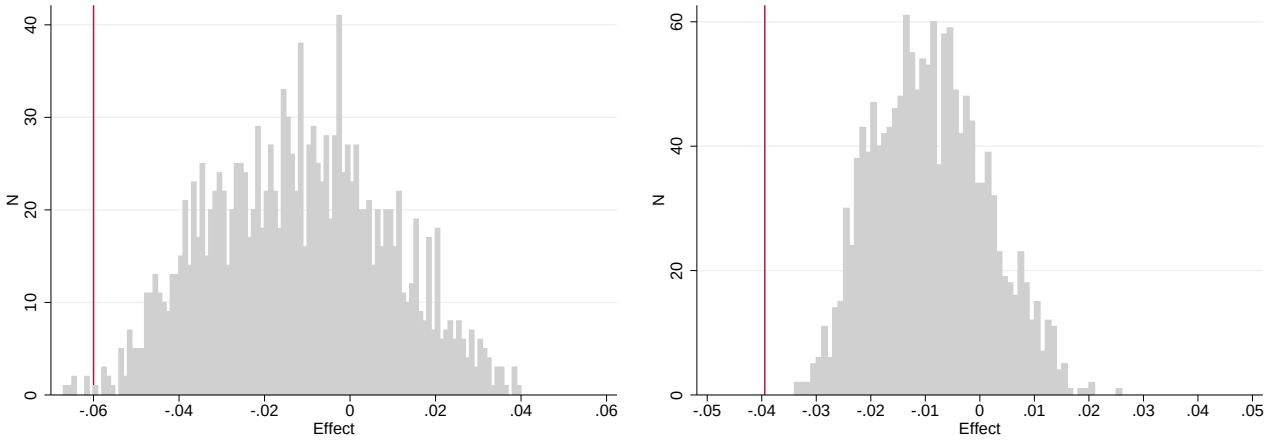
[11] At the time when the cantons introduces female suffrage, this held for all the cantons but Neuchâtel.

the same cohort when forming and executing their plans for life. This would lead to patterns in life choices similar to those we observe for Swiss women. Such a finding would not allow us to reject the alternative explanation of cohort-canton-specific societal changes driving the patterns. However, if the foreign women, who were raised by mothers who did not receive the right to vote and did not receive it themselves, do *not* show a similar pattern in life choices with reference to the introduction of female suffrage, then changes in norms that are cohort-canton specific are unlikely to be at work and unlikely to be responsible for the findings for Swiss women.

Table 6 reports the estimates of the main specification for the sample of women of foreign nationality. The number of foreign women born in Switzerland is considerably lower than that of Swiss women. Therefore, the confidence bounds are much wider than for the effects reported in Table 1. However, we can still check whether the sign and magnitude of the estimated differences are similar. In general, the point estimates are much smaller and partly reverse signs compared to those for the sample of Swiss women. The discrepancy is particularly pronounced for the variables capturing education choices. Further, there is no clear pattern of increasing effect sizes with enfranchisement at a higher age. There is just one effect that is rather similar to our findings in the Swiss female sample, i.e. the effect on the likelihood of ever being married.

Simulation analysis

We pursue a second, more direct, test of whether it is the time institutional changes come about in general or whether it is the actual year of the introduction of female suffrage that drives our findings. For this, we run a simulation with estimates for the coefficient of the indicator of the group in the sample that experienced the introduction of female suffrage latest. Rather than using the actual year of the introduction of female suffrage, we randomly assign introduction years to the cantons when calculating at which age a woman gained access to formal political participation rights. In this the introduction year of female suffrage is randomly chosen per canton from a normal distribution with the expected value of the real introduction year and a standard deviation of 10 years. We repeatedly estimate the coefficient of the indicator, taking



(a) Probability of working (b) Probability of being divorced

Figure 4: These figures visualize the distribution of simulated coefficients for two example dependent variables, i.e. the probability of working and the probability of being divorced, for the sample of Swiss women. The red vertical line marks the coefficient when the actual introduction year is used.

the same set of fixed effects into account as in the main specification and using the same sample of Swiss women. If the observed differences were, rather, due to societal change at the time around the introduction of female suffrage, affecting women differently depending on their age, we would expect the simulated coefficients to be just as high as those when we consider the actual introduction dates in a large fraction of runs. If the observed effects were, however, bound to the year of actual institutional change, it would be rather unlikely to observe estimates of the same magnitude. Due to the chosen normal distribution, the randomly chosen year is likely to be somewhere around the real introduction year. As a consequence, the simulation constitutes a rather conservative test of whether we observe just as large effects when choosing random years close to the actual introduction dates.

Figure 4 presents two example distributions of simulated coefficients for the group experiencing the introduction of female franchise latest on the likelihood of working and being divorced given married from 1,500 simulation runs. The red vertical line indicates the estimate resulting under the actual introduction dates. As becomes evident, for these two outcomes variables, the likelihood of obtaining stronger coefficient estimates than in the actual sample is rather low.

Table 7: Summary of the placebo simulations for the main sample of Swiss women

	Working	Part-time given working	House-wife	Ever married	Divorce given ever mar.	Low edu.	Little control life	Voting
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Suffrage late								
Est. with actual date	–0.06	0.052	0.053	0.023	–0.039	0.061	0.838	–0.107
P(stronger)	0.004	0.001	0.06	0.051	0	0.13	0.036	0.035

Notes: Summary table of the placebo simulations randomizing the introduction year of female suffrage. They are performed by running 1,500 estimates on the main sample of Swiss women.
Data source: Swiss population census individual data, 1980-2010.

Table 7 summarizes the results of the simulations for a large set of our dependent variables.[12] The highest probability of observing equally strong or stronger estimates in these simulations is about 13 percent for educational outcomes, which is low given that this is a rather conservative test. The remaining probabilities are far below this lying between 0 and 6 percent.

The fact that overall we do not observe foreign national women to react to female suffrage in the same manner as Swiss women to female suffrage and that we fail to reproduce similarly strong effects of female suffrage using simulated introduction dates in the time around the actual ones leads us to conclude that our main findings are unlikely to be produced by some general cohort-canton-specific societal changes but rather by the institutional change of granting women formal political participation rights.

8 Conclusion

Changes in women's lives have to a large extent marked the social and economic transformation in countries with developed economies over the last century. For the United States, Goldin (2006) termed the transformation of women's employment, education and family as a "quiet revolution" (p.1) that led to the change in women's roles in society and households, i.e. "[i]t

[12] More detailed descriptions of the simulations can be found in Table A3 in the Appendix.

was a change from passive actors, who take the income and time allocation of other members as given, to active participants who bargain somewhat effectively in the household and the labor market" (p. 2). Most of this development is understood as a consequence of technological advances in the economy but also in medicine, especially with the contraceptive "pill".

In this paper, we emphasize the forces unleashed by a sometimes not so quiet revolution, i.e. the enfranchisement of women. The main argument is that female suffrage not only led to political empowerment, but increased women's perceptions of control also in the private sphere, expanding the conceivable opportunity set for them and their daughters in the short- and long-run. We investigate this channel that contributed to women's emancipation in a developed country ideally suited to address the empirical challenges that emerge in such an analysis, i.e. by providing a control for many potential confounding factors that also shape women's lives. In particular, we exploit the variation in the age at which women experienced enfranchisement that resulted from the staggered introduction of female suffrage across the Swiss cantons. Specifically, we study how socialization in an environment in which women hold formal democratic participation rights changed women's lives in terms of their labor force participation, their educational attainment, as well as their marital status.

Based on more than two million observations, we find that women who were denied the right to vote for longer have a lower probability of carrying out paid work later on in life compared to women who experienced enfranchisement before the age of 17. Further, we observe that women experiencing enfranchisement later have a higher probability of being a housewife, and a higher probability of working part-time for those in work. Women who obtained the right to vote later are further more likely to marry and to stay married. Finally, women who were socialized in an environment without female suffrage are more likely to end up with a low level of education. Consistent with the idea that formal political participation rights increase self-efficacy, we find that women who experienced the introduction of female suffrage after they turned 17 are more likely to report that they have little influence on daily life and that others determine what

they do. We further observe lower voting participation for women socialized in an environment without female suffrage.

While previous research strikingly documents the long-term persistence of gender norms, often due to their institutionalization in unequal property rights, our results propose that changes in constitutional rights have the potential to trigger a transformation in these norms in the short- to mid-term. Specifically, we show that power sharing in the form of women's enfranchisement has substantially changed women's labor force participation as well as their educational and marital choices over only one to two generations.

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Appendix

A.I Additional Tables and Figures

Table A1: Introduction dates of female suffrage in Swiss cantons

Canton	Year of first exposure (treatment)	Level	Comments
Aargau	1971	*	municipal/cantonal in February 1971
Appenzell A.Rh.	1971	*	municipal in April 1972; cantonal in April 1989
Appenzell I.Rh.	1971	*	municipal/cantonal in November 1990
Basel-City	1966	cantonal/municipal	
Basel-County	1968	cantonal	municipal in September 1970
Berne	1971	*	municipal/cantonal in December 1971
Fribourg	1971	*	municipal/cantonal in February 1971
Geneva	1960	cantonal/municipal	
Glarus	1971	*	municipal/cantonal in May 1971
Grison	1971	*	cantonal in March 1972; municipal in February 1983
Jura	1971	*	municipal/cantonal in December 1971 (as part of Bern)
Luzern	1970	cantonal/municipal	
Neuchâtel	1959	cantonal/municipal	
Nidwalden	1970	municipal	cantonal in April 1972
Obwalden	1968	municipal	cantonal in September 1972
St. Gallen	1971	*	municipal/cantonal in January 1972
Schaffhausen	1971	*	municipal/cantonal in February 1971
Schwyz	1971	*	municipal/cantonal in March 1972
Solothurn	1971	*	cantonal in June 1971; municipal in March 1980
Thurgau	1971	*	municipal/cantonal in December 1971
Ticino	1969	cantonal/municipal	
Uri	1971	*	municipal/cantonal in March 1972
Vaud	1959	cantonal/municipal	
Valais	1970	cantonal/municipal	
Zug	1971	*	municipal/cantonal in February 1971
Zurich	1970	cantonal/municipal	

Notes: This table lists the introduction years of female suffrage for each canton as used in our analysis. Cantons that introduced the voting right for women at the same time or after the decision to introduce it on the federal level are marked with a * and the year of its introduction on the federal level is used.
Sources: Ruckstuhl (1986), Lutz and Strohmann (1998), and Koukal (2017).

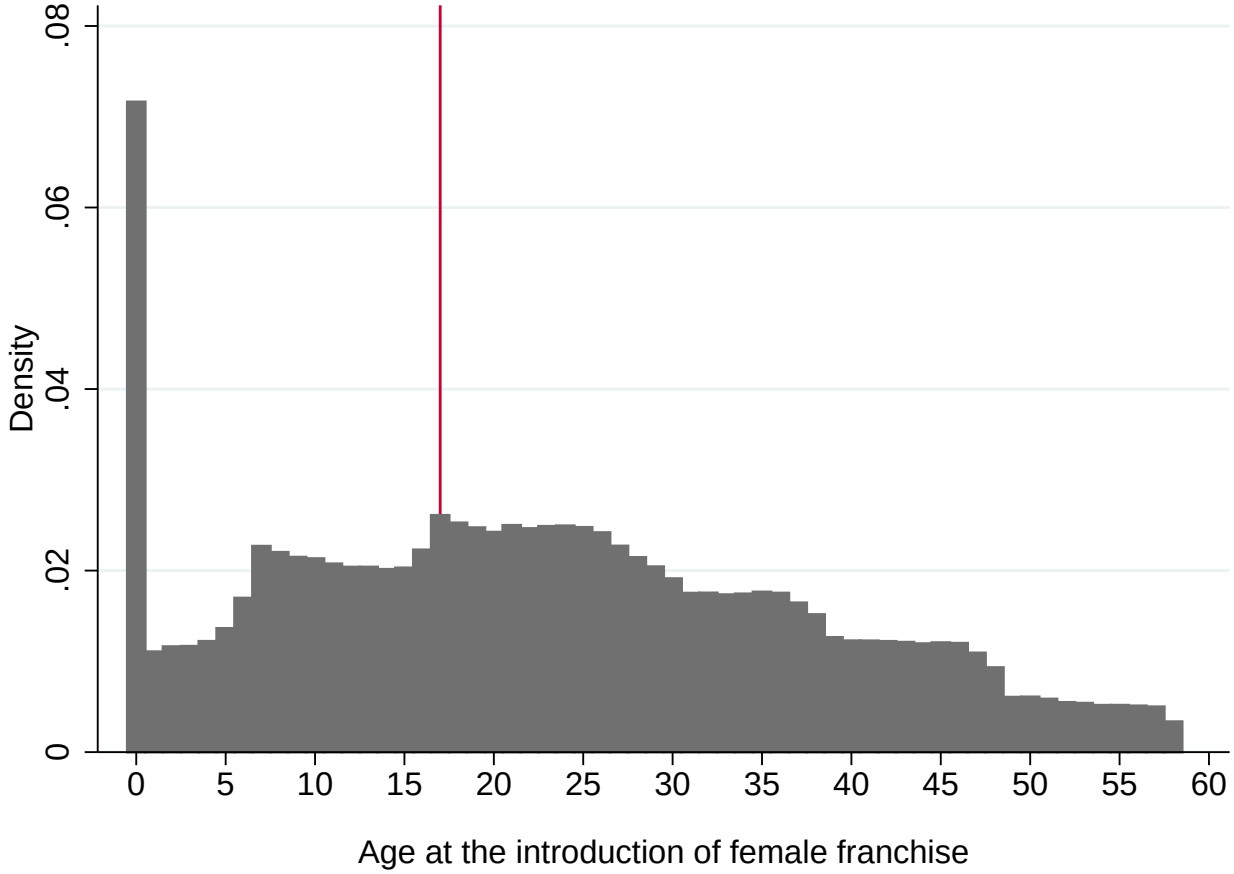

Figure A1: This figure visualizes the density of the age at which women experienced the introduction of female suffrage in our main sample of Swiss women. The red vertical line indicates the cutoff at the age of 17 years after which we consider a women to be primarily socialized in an environment without female suffrage.

Table A2: Female suffrage and women's life choices: Effect heterogeneity between conservative and liberal municipalities

	Working	Working given ever mar.	Part-time given working	House-wife	Ever married	Divorced given ever mar.	Low edu.	High edu.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Suffrage at								
age_{0-16}	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Conservative	–0.031***	–0.031***	0.007	0.041***	0.049***	–0.045***	0.051***	–0.045***
	(0.005)	(0.007)	(0.007)	(0.005)	(0.009)	(0.006)	(0.009)	(0.006)
age_{17-20}	–0.010	–0.004	0.003	0.010	0.013	–0.012**	–0.006	–0.007
	(0.008)	(0.006)	(0.009)	(0.010)	(0.008)	(0.005)	(0.008)	(0.006)
Conservative x	–0.027***	–0.018**	0.017**	0.029***	–0.002	–0.013**	0.074***	0.006
age_{17-20}	(0.008)	(0.007)	(0.008)	(0.008)	(0.006)	(0.005)	(0.010)	(0.004)
age_{21-25}	–0.024**	–0.011	0.027**	0.023*	0.031***	–0.013	0.001	–0.012**
	(0.011)	(0.010)	(0.010)	(0.012)	(0.009)	(0.008)	(0.012)	(0.005)
Conservative x	–0.023***	–0.015**	0.016*	0.022**	–0.018**	–0.026***	0.101***	0.012**
age_{21-25}	(0.007)	(0.007)	(0.009)	(0.008)	(0.008)	(0.008)	(0.012)	(0.005)
age_{26-35}	–0.047***	–0.028*	0.045***	0.046**	0.036***	–0.034***	0.017	–0.010
	(0.017)	(0.015)	(0.014)	(0.020)	(0.009)	(0.009)	(0.024)	(0.006)
Conservative x	–0.013*	–0.006	0.016**	0.013	–0.026***	–0.018**	0.135***	0.018***
age_{26-35}	(0.007)	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.015)	(0.005)
age_{26-35}	–0.089***	–0.066***	0.049**	0.086***	0.039***	–0.052***	0.020	–0.006
	(0.025)	(0.022)	(0.020)	(0.027)	(0.011)	(0.012)	(0.035)	(0.008)
Conservative x	0.026***	0.029***	0.004	–0.028***	–0.047***	0.004	0.154***	0.025***
age_{36-58}	(0.006)	(0.007)	(0.009)	(0.006)	(0.007)	(0.007)	(0.024)	(0.006)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age x canton FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canton x year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep.	0.55	0.47	0.50	0.32	0.77	0.09	0.38	0.07
No. of obs.	849,967	653,900	464,238	849,967	849,967	653,900	849,967	849,967
No. of clusters	26	25	25	26	26	25	26	26
R^2	0.17	0.16	0.07	0.10	0.13	0.05	0.20	0.06

Notes: Sample of Swiss females living in birth municipality. Municipalities are categorized into liberal and conservative ones according to men's voting behavior in the first federal referendum on women's right to vote in 1959. Controls include indicators for individuals' religious denomination. Standard errors are clustered at the cantonal level and reported in parentheses.
Significance levels: * $.05 < p < .1$, ** $.01 < p < .05$, *** $p < .01$.
Data source: Swiss population census individual data, 1980-2010.

Table A3: Summary of placebo simulations for Swiss women

Dependent variable	Mean	Std. dev.	Median	Min.	Max.	Obs.
Working						
Suffrage late						
Est. with actual date	−0.060					1
Simulated coef.	−0.012	0.021	−0.012	−0.067	0.040	1,500
P(stronger)	0.004			0	1	1,500
Part-time given working						
Est. with actual date	0.052					1
Simulated coef.	0.010	0.014	0.010	−0.039	0.053	1,500
P(stronger)	0.001			0	1	1,500
Housewife						
Est. with actual date	0.053					1
Simulated coef.	0.012	0.026	0.011	−0.054	0.077	1,500
P(stronger)	0.060			0	1	1,500
Ever married						
Est. with actual date	0.023					1
Simulated coef.	0.007	0.009	0.007	−0.031	0.040	1,500
P(stronger)	0.051			0	0	1,500
Divorced given ever married						
Est. with actual date	−0.039					1
Simulated coef.	−0.009	0.010	−0.009	−0.034	0.026	1,500
P(stronger)	0			0	1	1,500
Low education						
Est. with actual date	0.061					1
Simulated coef.	0.017	0.038	0.016	−0.094	0.136	1,500
P(stronger)	0.131			0	1	1,500
Little control over life events						
Est. with actual date	0.838					1
Simulated coef.	0.122	0.391	0.116	−1.221	1.761	1,500
P(stronger)	0.036			0	1	1,500
Voting participation						
Est. with actual date	−0.107					1
Simulated coef.	−0.024	0.050	−0.028	−0.196	0.185	1,500
P(stronger)	0.035			0	1	1,500

Notes: Main sample of Swiss women. The simulations are based on 1,500 runs.
Data source: Swiss population census individual data, 1980-2010.